

LIFE CYCLE & BIOLOGY OF MOSQUITOES

Mosquito is a Spanish or Portuguese word meaning *little fly*, derived from *Latin "musca"*. The term has been used in North America since 1583.

There are at least 43 species (types) of mosquitoes in Suffolk County. Many are capable of transmitting diseases to humans and animals. All mosquitoes require water for their growth. The water can be fresh, brackish (salty), clean or polluted.

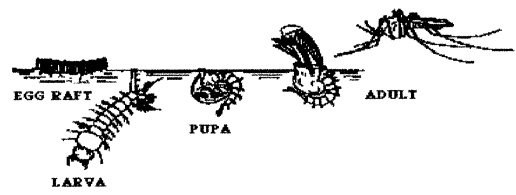
The life cycle of the mosquito has 4 developmental stages - **egg, larva, pupa** and **adult**. The first three stages occur in water. The last stage becomes the flying adult.

After mating with the male and blood feeding, the female mosquito lays her **eggs** on water surfaces or in low areas that are likely to become flooded. Eggs that are laid directly on the water hatch in 2-3 days. Eggs that are deposited in low areas hatch after flooding occurs or if these eggs remain dry, they may survive several years.

The eggs hatch into **larvae** which shed (molt) their outer shells as they grow larger. Larvae may be found in marshes, swamps, rain puddles, cesspools, unattended pools, tree holes, bird-baths, children's toys, old tires and other containers. In warm weather the larvae may reach the **pupal** stage in less than a week. The mosquito remains in the pupal stage for a few days before emerging as a winged **adult**.

Adult male and female mosquitoes feed on plant juices for energy. Males remain close to their breeding site while females will search for a blood meal. Only the female mosquito needs a blood meal to develop eggs. Depending on the species of mosquito, the female can fly a distance of one to five miles.

LIFE CYCLE OF A MOSQUITO



MOSQUITO-BORNE DISEASES

In Suffolk County, Eastern Equine Encephalitis (EEE) virus has been found in mosquitoes, birds and horses. In 1999, West Nile Encephalitis (WNE) virus was introduced into the Western Hemisphere and the New York area for the first time.

Female mosquitoes become infected with EEE and WNE viruses by feeding on infected birds. The female can later transmit these viruses to humans and other warm-blooded animals during subsequent feedings.

Mosquito-borne encephalitis in humans is rare. Encephalitis is an inflammation of the brain. Symptoms may include severe headaches, high fever, vomiting, confusion, irritability, tremors, muscle weakness, stupor, coma and possibly death.

Mosquitoes can also transmit other serious diseases such as malaria, yellow fever, dengue, as well as dog heartworm. At present, encephalitis remains the most important mosquito-borne disease in the United States.

PERSONAL PROTECTION AGAINST MOSQUITOES

- Avoid mosquito breeding areas during peak periods of activity, which are at dawn and dusk. (Some mosquitoes may be active all day.)
- Repair all poor fitting windows and doors.
- Check door and window screens.
- Keep car windows closed and garage doors closed at night.
- Keep shrubs and grass trimmed.
- Wear long sleeved shirts and long pants if outside during peak hours.
- Individuals may use repellents on exposed skin and clothing. Follow the label directions carefully.

REPELLENTS

Repellents may reduce mosquito bites. When used **improperly**, repellents may cause adverse health effects. ALWAYS READ AND FOLLOW LABEL DIRECTIONS CAREFULLY. Do not apply to face. Do not apply to hands of children. NEVER ALLOW CHILDREN TO APPLY REPELLENTS. Repellents should **not** be applied to children under 3 years old. Wash treated skin and clothing after returning indoors.

HOMEOWNERS WE NEED YOUR HELP!

The best way to manage mosquitoes is to eliminate stagnant or standing water where mosquitoes can lay eggs:

- ✖ REMOVE all containers that collect **standing water** such as cans, bottles, buckets, toys, kiddie pools and old tires.
- ✖ DRILL holes in the bottoms of recycling containers, garbage cans and other receptacles that are kept outdoors.
- ✖ INSPECT and REMOVE **standing water** in flowerpots and plant containers weekly.
- ✖ DRAIN and cover or turn over unused boats.
- ✖ CHANGE water twice a week in birdbaths, fountains, wading pools and troughs.
- ✖ FILL holes and depressions that can hold **standing water**.
- ✖ CLEAN clogged roof gutters and DRAIN flat roofs.
- ✖ COVER all cesspools and rain barrels.
- ✖ STOCK ornamental ponds with goldfish or mosquito fish.
- ✖ MAINTAIN swimming pools with proper pool chemicals.
- ✖ FILL tree holes with sand or soil.
- ✖ REPAIR leaky pipes and outside faucets.
- ✖ CHANGE the water in pet bowls daily.
- ✖ REPORT mosquito breeding sites that are difficult to eliminate to Vector Control.

BEWARE OF GIMMICKS

Many devices are sold that claim to repel or kill mosquitoes. Most of these devices are not effective and should be researched before buying. Insect light electrocuters (bug zappers) or sound devices do not work in reducing mosquitoes.

THE SUFFOLK COUNTY MOSQUITO CONTROL PROGRAM

Suffolk County operates a mosquito control program for the protection of public health and well being. There are two agencies responsible for this program.

1) The Department of Health Services

Arthropod-Borne Disease Laboratory

A Bureau within the Division of Public Health that provides the following services:

Surveillance - Adult mosquitoes are collected at various locations within Suffolk County and tested for the presence of disease causing agents.

Mosquito Fish (*Gambusia affinis*) -The Lab provides mosquito fish to sites suggested by Vector Control. These topfeeding minnows are natural predators that eat mosquito larvae. An established population of these fish will effectively control mosquitoes throughout the summer. Mosquito fish can be stocked **ONLY** in contained water sites such as sumps and ornamental ponds. They are **NOT** necessary when water already contains other fish.

2) The Department of Public Works

Vector Control

This Division of the Department of Public Works uses an Integrated Pest Management (IPM) approach to control mosquito population. This approach includes:

Water Management - This comprises 70% of the mosquito control budget. The County maintains a network of ditches and canals to eliminate standing water and allow fish into mosquito breeding areas. Vector Control also cooperates with other agencies to combine mosquito control with wetlands restoration.

Larviciding - Bodies of water with breeding mosquitoes are surveyed and when necessary, larvae are controlled with bacterial or biochemical agents.

Adulticiding - Adult mosquitoes are controlled by spraying insecticides over certain target areas. Spraying is performed only when necessary.

CALL THE SUFFOLK COUNTY DEPARTMENT OF PUBLIC WORKS
VECTOR CONTROL PROGRAM TO:

- REPORT MOSQUITO INFESTATIONS
- REQUEST MOSQUITO FISH
- ASK QUESTIONS ABOUT PESTICIDE SPRAYING

(631) 852 - 4270

FOR ALL OTHER INFORMATION CALL
THE SUFFOLK COUNTY DEPARTMENT OF HEALTH SERVICES
DIVISION OF PUBLIC HEALTH

(631) 853 - 3055



Additional Fact Sheets are available on our website
@
<http://www.co.suffolk.ny.us/health>

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MOSQUITOES



Important Facts for Suffolk County Residents